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ABSTRACT

The boundaries between various information, entertainment, and communication fields are shifting. The edges between our library systems and communication networks are becoming increasingly fuzzy. These fuzzy edges affect concepts of education, learning, and knowledge. The existing library paradigm does not easily accommodate the new, fluid and dynamic knowledge networks. Librarians need to identify the structures that are essential for perpetuating the values of the learning community into the knowledge networks of the future. Greater freedoms of access are possible with electronic networks, but greater restraints are also possible. Electronic impulses can be easily manipulated, modified, distorted, transmitted, and erased. International aspects of network access involve questions of different legal and regulatory structures. The protection of free speech and assurance of privacy in electronic network use are critical if society's freedoms are to be preserved. (KRN)

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North Carolina Library Association
1991 Biennial Conference
"Furnishing Knowledge Networks for the Information Future"
November 13, 1991
"Knowledge Network Values: Learning at Risk?"

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I. Introduction

It is a pleasure to be with you this afternoon. The topic I'm going to talk about today concerns the impact that electronic networks are having on the values of our knowledge and learning institutions, including libraries. A few years ago, we would not be talking about knowledge, networks, learning, or values at library association conferences. Then we were talking about furnishing library services to users. Times have changed, however, and these recent changes are the subject of my talk.

Before getting into the topic, I would like to recognize and to thank several people who have helped make North Carolina a special place, especially for libraries. First, John Via, Assistant Director at Wake Forest University Library, who has been so helpful with arranging for my participation in your conference. Second, Mrs. Elinor Swaim of Salisbury, currently Vice Chair of the U.S. National Commission on Libraries and Information Science. I think Elinor needs no introduction to you. Her energy and devotion to libraries are a continual source of inspiration to me and to her colleagues on the National Commission. Having traveled with her to Native American tribal college libraries in Montana this past August, I can vouch for Elinor as both an inveterate small plane traveler and a wonderful friend.

Next, I want to recognize Dr. Marylin Miller and to congratulate her on her recent election to lead the American Library Association as President; not only is Marylin one of the most capable and knowledgeable librarians that I know, she is also the most through newspaper reader I have ever met. In addition, I want to recognize and salute Howard McGuin, your State Librarian. You are certainly fortunate to have such an exceptional leader here in North Carolina, especially one so knowledgeable about networks.

Finally, I want to recognize a native North Carolina librarian who is not here with us this afternoon. Jane Williams, former State Librarian, is currently on the staff of the National Commission. Jane is a real gift, as well as a delight to work with, and I thank you all for training her to do such a great job for us all. It is delightful to be here with so many friends and to be able to talk about libraries, networks, and learning.

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Picture the following scene: I am standing on a street corner in downtown Chicago last month when a colleague, an academic librarian, turns to me and asks: "Peter, what do you mean by the phrase 'knowledge network communities'?" At the time, it was a little difficult to talk about paradigm shifts, especially with Chicago's rush hour traffic roaring past in front of us. So, instead of changing subjects or launching into a lecture, I shouted a few brief comments about the role of libraries in national networks, and about our changing concepts of communications, knowledge, and community brought on by advances in computing and communication technology. I'm going to try to answer my friend's question this afternoon by briefly exploring the impact of knowledge networks on learning and values.

The language that we use to discuss interactive networks is not the same as the language of librarianship. Actually, it is getting hard to know whether we are talking about libraries, information, or communications. For example, a recent decision by the Federal Communications Commission to allow telephone companies to deliver television programming to the home through fiber optic cable, mixes the entertainment with communication industries. Similarly, last summer's federal court action to allow the regional telephone companies to offer information services seems to mix communications with information delivery. The boundaries between various information, entertainment, and communication fields are shifting. The edges between our library systems and communication networks are becoming increasingly fuzzy. The same fuzzy edges are affecting our concepts of education, learning, and knowledge.

Perhaps the confusion some of us feel talking about libraries and knowledge networks is symptomatic of the maturing of our field; or perhaps it is a signal of advancing age and the onset of dementia. In a more positive vein, perhaps these concerns signal a shift in the social functions of our libraries and the alliance of libraries with other information, education, and communication organizations. Perhaps our concern with knowledge network futures at library association meetings such as this reflects a paradigm shift.

Increasingly, library involvement in communication networks is changing the way we think and talk about libraries and information services. The changes are reflected in our terminology. Phrases such as "Knowledge Networks", "information architecture", and "communications infrastructure" reflect changes in the way we think about the information transfer functions related to learning, thinking, and knowledge, as well as our definitions of network and community.

The information future does indeed involve knowledge networks. But what are the differences between using a knowledge network and using a library? Are these knowledge networks based on the same values reflected by the library as a learning institution? What, indeed, do we mean when we speak of a knowledge community tied together by a national electronic network? Will libraries become irrelevant in the information future where knowledge networks are ubiquitous? And if they

become irrelevant, why should we care about it?

The current situation reminds me of the story about the devoutly religious man whose house is threatened by a flood. With the water rising and evacuation underway, the man refuses his family's pleas to leave the area of danger saying: "No, God will save me." As the flood waters rise to the porch, a neighbor in a rowboat offers to evacuate him. The man refuses saying "You go ahead, God will save me." The water rises to the second floor. A motor boat passes by the house and the driver trys to persuade the man to leave. The man waves the motor boat away saying, "No fear, God will save me."

The water continues to rise past the roof line of the house. The man climbs onto the peak of the roof where a rescue helicopter lets down a line, but, once again, he calls to his rescuers that "God will save me, don't worry." The water rises to his neck, and he turns his face to the sky and calls out to God: "I'm ready for you to save me now, Lord." At this point a loud voice from heaven bellows: "I've already sent you a row boat, a motor boat, and a helicopter, what more do you want?"

Compare the man in this story to the library profession. As floods of information, new formats, and new technologies engulf our libraries, the purist in us tends to differentiate our calling from the functions performed by the entertainment industry, commercial information services, and the telephone companies. Over the last quarter century, automation, online integrated systems, digital optical storage, and electronic networks have transformed the nature of libraries and library users. Yet much of our behavior also inhibits the spread of technology, focusing instead on maintaining the collections and preserving the concepts from our past. We also tend to over emphasize the complications of new technologies, rather than to stress the conveniences. Our orientation is towards users borrowing or copying materials, not on delivering or marketing information services. Networks challenge our concepts of service with the hard reality of commercialism and competition.

Like the man in the flood, we seem to have placed our professional faith in a higher order, rather risking a transformation and, perhaps, a loss. Instead of viewing technology as a tool for librarians, our emphasis might better be placed on the technological potential for expanding user access in ways that are consistent with the values and ideals of librarianship.

Library Paradigm Shift to Knowledge Networks

Thomas S. Kuhn published "The Structure of Scientifc Revolutions (Univ. of Chicago, 1970) over two decades ago. This work popularized the phrase "paradigm shift" to describe a global shift in worldview or vision which occurs when an anomaly presents questions that cannot be readily explained. Lacking satisfactory answers to these critical questions creates a crisis or breakdown reflected a deep professional insecurity. An emerging new paradigm presents different rules with new language and terminology that is neater and simpler in offering answers to questions which

exposed the inadequacy of the previous paradigm.

My objective this afternoon is to cast doubt about the adequacy of our existing library paradigm to easily incorporate network technologies. I want to encourage a re-examination of the values and established conventions represented by the library paradigm and learning systems. The truth is that a new knowledge network paradigm is emerging rapidly. We need to identify those structures that are absolutely essential if we are to perpetuate the values of the learning community into the knowledge networks of the future. Like the man in the flood, the library profession needs to be rescued from the rising flood waters. But we also need to be very clear about what we leave behind and what we take with us when we climb into someone else's rescue vehicle.

The computer and communications industries are in transition. The computer transition involves a shift from desktop machines to networks where isolated productivity tools are integrated in networks with other client and server machines. The transition also involves the integration of multimedia, blending aspects of books, television, computers, and the human imagination. In a sense, the transition involves the convergence of technologies associated with video, telephone, and computing to produce a powerful new paradigm that allows a PC to play television-quality video and stereo sound through interactive programs.

The communications transition involves a shift from electronic voice communication to high-speed, high-capacity digital data transmission that integrates the concerns of the cable television industry with the phone companies and the newspaper publishing industry. The converging interests of these various industries is evident in recent federal court decisions, but evidence of the concern about these public policy questions surfaced at the White House Conference on Library and Information Services this past summer. Two top priority recommendations received attention. One concerns the role of libraries in supporting children and youth literacy services, the other focuses on the role of libraries in the national electronic information network. Libraries have crucial roles to play in the emerging networks which serve the educational, informational, and communication needs of the Nation. Identifying these roles involves a careful look at the cultural and behavioral changes associated with the emerging knowledge network community.

Knowledge Network Communities

Networked organizations are now emerging which present new models that challenge our older concepts of time and place. Networks have the potential for changing the nature of the overall work and educational environments, and of changing the conventional patterns and expectations of who talks to whom and who has access to what knowledge.

Marilyn Ferguson, in her 1980 book, The Acquarian Conspiracy: Personal and Social Transformation in the 1980's, (p. 213), describes the "network" as "...the institution of our time: an open system, a dissipative structure so richly coherent that

it is in constant flux, poised for reordering, capable of endless transformation. This organic mode of social organization is more biologically adaptive, more efficient, and more 'conscious' than the hierarchical structures of modern civilization. The network is plastic, flexible. In effect, each member is the center of the network. Networks are cooperative, not competitive. They are true grass roots: self-generating, self-organizing, sometimes even self-destructing. They represent a process, a journey, not a frozen structure."

Our library orientation for organizing information and structuring learning environments are challenged by the fluid and dynamic nature of networks. Old static, closed systems for ordering knowledge in a hierarchical paradigm are disappearing under the rising flood waters of a networked global community.

Our notions of community as a body of individuals with common interests living in a defined physical space or a specific geographical area is no longer consistent with reality. A community is becoming place independent. Communities are, by definition, social constructs built upon common interests and participation. As a result of forming a community, structures, customs, and shared expectations arise to satisfy a human need for order, consistency, fairness, and effectiveness. Community members are distinguished from those not a part of the group by access to information and knowledge, not by where they reside.

Communication of information and knowledge among the members of a community is an essential defining aspect of any community. In a networked community, however, communication takes on a heightened level of importance. Interaction among network members may be the only outward evidence of community activity. Communication however, involves more than messages. It entails status and hierarchy relationships. Communication involves an alignment or a frame for messages between parties. Just like traffic rules changed when interstate highways were introduced to motorists in the 1960's, so also, the "rules of the road" for governing traffic and determining "right of way" in knowledge networks requires a reorientation of our priorities and status relationships. Questions relating to quality, productivity, privacy, and access need to be balanced against the open, adaptive, organic, and flexible nature of networks.

Learning Community Values

The impact of electronic networks and multimedia technologies on the learning community affects not only the nature of educational resources, but also the nature of the community's social structures which maintain the identity and viability of the group. Computer laboratories and electronic classrooms provide students the ability to interact with instructional resources in ways that are not possible through printed textual sources. But these same communities of learning which depend upon the network's interactions and links to maintain the values and quality of scholarship, are also constrained by the limits to access imposed by current property ownership and subscription pricing policies of owners and creators.

The electronic environment of computer networks is marked by versatility, complexity, diversity, and intangibility. Most of our society's traditional rights, customs, and freedoms result from a social, legal, and political environment that is defined by constraints of physical space and temporal proximity. Just the problem of talking about the nature of information on a network presents problems. The fluidity of the network makes it difficult to know which version of a document we are talking about, whether it is the draft, a review copy, or a "published" copy. The diversity of different environments makes it difficult to identify who is the author, the reviewer, the editor, the publisher, the distributor, the teacher, the learner, the librarian, or the archivist.

Not only do networks stretch our print-bound delineation of roles, they also expose the limits of our old paradigms. Intellectual property law, social equity policy, information economics, and regulation of communications are all under siege from the emerging new knowledge network paradigm. Our social laws and customs result from an industrial era with different priorities and cultures than those common to the emerging knowledge network community.

The protection of free speech and assurance of privacy in electronic network use are both critical to our society. Individual rights and liberties are especially critical to our entry into the networking age since we are on the eve of celebrating the bicentennial of the Bill of Rights ratification on December 15, 1991. Greater freedoms of access are possible with electronic networks, but greater restraints are also possible. The ease with which electronic impulses can be manipulated, modified, distorted, transmitted, and erased requires a careful balancing of competing needs. The situation is made more complex by international aspects of network access involving questions of different legal and regulatory structures.

The values of our knowledge network communities must reflect those freedoms and principles which both inspired and troubled past generations of teachers and librarians. In addition, the new knowledge communities require legal and economic structures, as well as electronic network infrastructures to perpetuate those value structures which are basic to our democratic way of life.

Our society's freedoms must surely be translated to function within the boundaries of the new knowledge network communities, just as these freedoms must be redeveloped to form the basis for newly emerging national governments in Eastern Europe and the Soviet Union. The changes occurring in these knowledge network and community domains are not simply economic and political in nature. The changes involve fundamental decisions about how communications must function among individuals in order to respond to new definitions of productivity, accountability, and responsiveness in creating a caring, humane, and civilized world society in the future.